Calendar No. 466

100TH CONGRESS *1st Session*	SENATE	REPORT 100-239

REAUTHORIZATION OF THE EARTHQUAKE HAZARDS REDUCTION ACT OF 1977

Mr. HOLLINGS, from the Committee on Commerce, Science, and Transportation, submitted the following

REPORT

OF THE

SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ON

H.R. 1612

DECEMBER 9 (legislative day, DECEMBER 8), 1987.—Ordered to be printed

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S263-28

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100TH CONGRESS
1st Session

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REPORT
100-239

REAUTHORIZATION OF THE EARTHQUAKE HAZARDS REDUCTION ACT OF 1977

DECEMBER 9 (legislative day, DECEMBER 8), 1987.—Ordered to be printed

Mr. HOLLINGS, from the Committee on Commerce, Science, and Transportation, submitted the following

REPORT

[To accompany H.R. 1612]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (H.R. 1612) to authorize appropriations under the Earthquake Hazards Reduction Act of 1977 for fiscal years 1988, 1989, and 1990, having considered the same, reports favorably thereon with an amendment in the nature of a substitute and an amendment to the title and recommends that the bill do pass.

PURPOSE OF THE BILL

The purpose of the bill is to authorize appropriations for fiscal years 1988 and 1989 to the Federal Emergency Management Agency (FEMA), the U.S. Geological Survey (USGS), the National Science Foundation (NSF), and the National Bureau of Standards (NBS) to carry out provisions of the Earthquake Hazards Reduction Act of 1977 (the Act).

The bill, as reported, authorizes appropriations to FEMA of $5,778,000 for fiscal year 1988 and $5,788,000 for fiscal year 1989; to USGS of $40,450,000 for fiscal year 1988 and $41,819,000 for fiscal year 1989; to NSF of $28,700,000 for fiscal year 1988 and $32,100,000 for fiscal year 1989; and to NBS $525,000 for fiscal year 1988 and $525,000 for fiscal year 1989.

BACKGROUND AND NEEDS

Earthquakes are a significant hazard in the United States. More than a thousand earthquakes are detected in the United States

each year, and, although most earthquakes are small, catastrophic earthquakes have caused great damage in the past and are likely to continue in the future. There is a greater than 50 percent chance of a great earthquake in southern California in the next 30 years, and such an earthquake could cause over 20,000 deaths and tens of billions of dollars or property losses. Similarly, devastating earthquakes could occur elsewhere in the West, in Alaska, and in the central and eastern United States. Three disastrous earthquakes struck the New Madrid area of Missouri in 1811–12, and an 1886 tremor in Charleston, SC, caused great damage in that city. Even moderate earthquakes can cause death and destruction; the October 1, 1987, tremor near Whittier, CA, registered only 6.1 on the Richter scale but killed six people and caused over $100 million in damage. Thirty-nine States and 70 million people in the United States face some degree of risk from earthquakes.

In 1977, the Congress, recognizing the problems posed by earthquakes, enacted the Act to reduce the risks to life and property from future earthquakes. The emphasis of the Act is on prevention and preparedness as distinct from disaster relief. To achieve this, the Act specifies several objectives: (1) development of an earthquake prediction capability along with an understanding of the economic, legal, political, and social implications of such a capability; (2) preparation of model codes for construction and land use decisions; (3) employment of modern design and construction methods to make new and existing structures earthquake resistant; (4) education of the public and decision makers concerning measures that could be taken to reduce hazards from future earthquakes; and (5) a basic and applied research program to advance the science and engineering aspects of earthquake mitigation.

The Act established the National Earthquake Hazards Reduction Program (NEHRP), a multiagency effort to meet the congressionally mandated objectives. The agencies involved are FEMA, USGS, NSF, and NBS.

FEMA has primary responsibility to plan and coordinate the NEHRP; assist States and local governments with earthquake mitigation and preparedness planning; coordinate Federal activities in response to a declared earthquake disaster or emergency; and develop improved seismic construction codes, standards, and practices for the Federal Government, for States and local governments, and for various elements of the private sector.

USGS conducts and sponsors research on (1) the nature of earthquakes, including the physical processes controlling ground shaking, ground failure, and tectonic deformation; (2) earthquake prediction; and (3) induced seismicity. In addition, USGS delineates and evaluates geologic hazards; prepares seismic risk maps; evaluates earthquake predictions; provides data on earthquakes and related occurrences to all interested parties; and sponsors a program of outreach activities to Federal, State, and local governments and many elements in the private sector.

NSF sponsors basic and applied research on earthquake processes and phenomena in its geophysics program and on earthquake engineering and socioeconomic implications of earthquakes in its civil and environmental engineering program. NSF's societal response program supports research on the responses of individuals,

organizations, and communities to earthquakes and related hazards.

NBS contributes research on performance criteria and supporting measurement technology for earthquake-resistant construction. It also provides technical assistance to other Federal organizations in the development of design and construction provisions to reduce earthquake hazards in new and existing buildings.

The Committee believes that important progress has been made since the passage of the Act but that further work continues to be necessary. Some of the research conducted under NEHRP has led to the knowledge that the earthquake hazards are more geographically widespread and difficult to reduce than was originally believed. Earthquake prediction, although still a possibility, is more difficult than originally thought. Similarly, research is revealing how little is known about earthquakes in the central and eastern United States. Because there is much more important work to be done to reduce earthquake hazards, the Committee believes that continued funding of this program is both warranted and vital.

Legislative History

On April 23, 1987, the Committee held a hearing on the reauthorization of the Earthquake Hazards Reduction Act of 1987. On June 8, H.R. 1612 passed the House of Representatives and was referred to the Committee. On July 23, the Committee met in open executive session and without objection ordered the bill reported with an amendment in the nature of a substitute.

Summary of Major Provisions

The following table, in millions of dollars, compares the NEHRP's fiscal year 1987 appropriations levels with the administration's requests for fiscal years 1988 and 1989, the recommend levels in the House-passed version of H.R. 1612, and the levels in the Committee's reported bill.

[In millions]

	Appropriations 1987	President's request		House-passed bill		Committee	
		1988	1989	1988	1989	1988	1989
FEMA	5.778	5.313	5.322	5.778	5.788	5.778	5.788
USGS	34.775	32.540	33.676	36.540	37.819	40.540	41.819
NSF	25.100	28.700	32.100	28.235	31.634	28.700	32.100
NBS	.499	.525	.525	.525	.525	.525	.525
Total	66.152	67.152	71.626	71.078	75.766	75.543	80.232

Estimated Costs

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget Act of 1974, the Committee provides the following cost estimate, prepared by the Congressional Budget Office:

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington, DC, October 14, 1987.

Hon. ERNEST F. HOLLINGS,
Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate, Dirksen Senate Office Building, Washington, DC.

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the attached cost estimate for H.R. 1612, a bill to authorize appropriations under the Earthquake Hazards Reduction Act of 1977 for fiscal years 1988 and 1989, and for other purposes.

If you wish further details on this estimate, we will be pleased to provide them.

With best wishes,
Sincerely,

EDWARD M. GRAMLICH,
Acting Director.

CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

1. Bill number: H.R. 1612.

2. Bill title: A bill to authorize appropriations under the Earthquake Hazards Reduction Act of 1977 for fiscal years 1988 and 1989, and for other purposes.

3. Bill status: As ordered reported by the Senate Committee on Commerce, Science, and Transportation on July 23, 1987.

4. Bill purpose: This bill authorizes the appropriation of specific sums in fiscal years 1988 and 1989 for earthquake hazards reduction programs in four agencies: the Federal Emergency Management Agency, the U.S. Geological Survey, the National Science Foundation, and the National Bureau of Standards. The bill also requires any state that has not engaged in cost sharing by matching federal grants for the activities of the act to share costs in fiscal year 1989 at a level no higher than 25 percent of the cost of the activities involved.

5. Estimated cost to the Federal Government:

[By fiscal year, in millions of dollars]

	1988	1989	1990	1991	1992
Authorization level	75.5	80.2	.....	.....	.....
Estimated outlays	55.8	74.7	20.9	4.0	0.3

The costs of this bill fall within budget functions 250, 300, 370, and 450.

Basis of estimate: For the purposes of this estimate, it was assumed that the funds authorized by this bill will be appropriated for each fiscal year. Outlays reflect historical spending patterns of the relevant agencies.

6. Estimated cost to State and local governments: CBO estimates that this cost sharing provision will result in additional costs to state governments of about $250,000 in fiscal year 1989.

7. Estimate comparison: None.

8. Previous CBO estimate: On April 23, 1987, CBO completed a cost estimate of H.R. 1612, as ordered reported by the House Committee on Interior and Insular Affairs. On May 15, 1987, CBO completed a cost estimate of H.R. 1612 as ordered reported by the House Committee on Science, Space, and Technology. The authorization levels in the Senate bill are higher than in either House version, and the estimated costs reflect this difference.

9. Estimate prepared by: Douglas Criscitello.

10. Estimate approved by: James L. Blum, Assistant Director for Budget Analysis.

Regulatory Impact Statement

In accordance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following evaluation of the regulatory impact of the legislation, as reported.

The bill does not regulate private business activity or any private activity. The Committee concludes, therefore, that the implementation of this bill will have no regulatory impact or impact on the personal privacy of any individual or business. No records v ill be required to be kept by any individual or business, nor will any reports need to be filed as a result of this bill becoming law, so there should be no additional paperwork burden imposed by the bill.

Section-by-Section Analysis

SECTION 1

FEMA reauthorization

Section 1(a) authorizes $5,778,000 for earthquake activities at FEMA for fiscal year 1988 and $5,788,000 for fiscal year 1989.

The administration request for fiscal years 1988 and 1989 includes a reduction in State earthquake planning grants. The administration argues that stronger State programs will result if the States must assume greater financial responsibilities.

The Committee rejects the administration request to cut $445,000 in order to reduce earthquake planning grants to the States. While State and local governments have the primary responsibility for the protection of life and property, it is in the Federal interest to develop and maintain State and local capabilities to address the earthquake threat. To assist the development of these capabilities, the Committee believes that FEMA should continue to provide limited but valuable financial assistance to State and local governments.

The Committee expects that its overall FEMA authorizations for fiscal years 1988 and 1989 will lead to a level of activity comparable to that of 1987, and that FEMA will not use the reprogramming of funds or changes in budgeting practices to reduce the overall level of FEMA earthquake activities.

In reviewing FEMA's role in the NEHRP, the Committee has also examined three other issues: FEMA's role as the program's lead agency, the priority FEMA places on its earthquake activities, and the question of whether to require the States to provide matching funds in order to remain eligible for FEMA earthquake planning grants.

During its reauthorization hearing, the Committee heard testimony on the need for stronger leadership for the NEHRP. The NEHRP is an interagency program, so the Committee recognizes the difficulty of serving as lead agency in such an effort. However, the Committee believes that more program integration is vital, particularly in ensuring that research findings are transferred to engineers, planners, and other officials in a timely and useful form. FEMA has begun to take steps to fulfill its leadership role better by establishing an Expert Review Committee to assist in the revision of the NEHRP 5-year plan, undertaking a survey of the first 10 years of the program, and working with the other agencies to identify gaps and overlaps in NEHRP activities. The Committee directs FEMA to continue in its efforts to improve program integration and effectiveness, and directs the other three agencies to increase their cooperation with FEMA.

In addition to the Committee's wish that FEMA continue as lead agency for the program, the Committee believes that the leadership of the agency should devote more attention to its earthquake activities. The earthquake program is the only statutory program in FEMA that does not have a separate line item in the budget. Given that FEMA is lead agency for the NEHRP, the Committee directs FEMA to establish a budget line item for activities undertaken in support of the earthquake program, so that these activities can be recognized in the President's annual budget request. No additional costs should be incurred as a result.

The Committee believes that State and local governments should help pay for the costs of earthquake hazards reduction programs in their jurisdictions. However, the Committee rejects FEMA's proposal to begin in fiscal year 1988 to require a 50 percent State match for its planning grants. That proposal did not give States enough time to prepare for the change. State participation is critical to the success of the NEHRP, so any new funding requirements must be phased in.

Section 2 of the reported bill would provide an orderly phase-in of such requirements. It prohibits the imposition of any new cost-sharing requirements in fiscal year 1988, but would allow FEMA in fiscal year 1989 to require that States receiving grants provide up to 25 percent of the total cost of the activities involved.

USGS reauthorization

Section 1(b) authorizes funding for earthquake activities at USGS in the amounts of $40,540,000 for fiscal year 1988 and $41,819,000 for fiscal year 1989.

The administration has requested a reduction in USGS's earthquake prediction and regional monitoring programs for fiscal years 1988 and 1989. The Committee rejects the administration's proposed cuts. The proposed cuts would force the closure of parts of regional seismic networks that measure earthquake activity in Alaska, Nevada, Utah, and Missouri. The Committee believes that these seismic networks are vital and authorizes these activities at the fiscal year 1988 base level.

The Committee's USGS levels also include $4 million per year to fund two initiatives. Of the additional $4 million, $2 million is for the study of earthquake hazards in the eastern United States, de-

fined here as that portion of the country which lies east of the Rocky Mountains. While large earthquakes are less frequent in the East than in the West, their consequences can be more severe due to the East's high population density and geological features which lead to much larger areas being affected by an earthquake. In addition, the Nation's understanding of eastern seismicity remains limited.

In recent years, the Nuclear Regulatory Commission (NRC) has contracted with eastern universities and others to operate and maintain regional seismograph networks in the East. The budget for these operations has been approximately $2,500,000 per year. By an unwritten USGS-NRC agreement, USGS has concentrated its earthquake studies in the West. NRC has used its information to help set seismic safety standards for nuclear power plants. However, since few new nuclear plants are under construction, NRC has announced it will eliminate support for the eastern networks and for their university operators, severely reducing funding for the study of eastern seismicity. NRC has agreed to provide $1 million per year to USGS for 5 years to establish a USGS-operated "National Seismic Network" to replace the university-based regional networks. The new network is important, but the new program will not provide as much detailed information as the university-based networks. Nor will it provide support to university researchers who are striving to understand and map seismic risk in the East.

The proposed $2 million per year increase would maintain and improve the existing eastern regional networks, allow continued contracts with universities and thus maintain their capabilities, and generally support university seismic research. The Committee intends that research topics include but not be limited to the characteristics of strong ground shaking in the region, the earthquake potential of specific areas, how soil conditions amplify the force of eastern tremors, and estimates of earthquake losses.

The Committee intends that the remaining $2 million of the $4 million annual increase be used to support university research in the field of "engineering seismology." This field analyzes strong ground motion from earthquakes, the effect this motion has on buildings and other structures, and what can be done to reduce this damage. USGS currently supports some internal research on earthquake seismology, but so far has been unable to work with universities, particularly civil engineering departments, to take advantage of major new scientific opportunities to increase our understanding of how earthquakes affect structures. Since building collapse is the major cause of death in large earthquakes, improvements in engineering seismology could be of immense value. In a recent National Academy of Sciences report entitled "Recommendations for the Strong-Motion Program in the United States," the Academy recommended that "[a]n external strong-motion research program should be established as part of the Engineering Seismology element of the U.S. Geological Survey, by seeking new funding as required by strong motion research needs."

The Committee agrees with this recommendation and also recognizes that the competition for individual research grants in earthquake engineering has been made greater by NSF's decision to es-

tablish a National Center for Earthquake Engineering Research in Buffalo, NY. The Committee intends that the additional funds be used for individual grants to university researchers and for collaborative projects between USGS geologists and university civil engineers. The Committee notes that such collaboration has already begun in California. One result is an innovative experimental computer program which enables local officials, insurance companies, and homeowners to use existing information on earthquake risk and building characteristics to judge how much damage local buildings may suffer in an earthquake. Research in this area could provide improved understanding and more precise predictions of building risk.

The Committee intends that the research projects focus on the characteristics of strong earthquake shaking; its duration, frequency, and amplitude; the factors that influence these characteristics such as soils, distances, and fault mechanics; how these motions are transmitted to structures; how structures respond and what causes specific responses; estimates of losses; and mathematical models and techniques for reducing such losses.

NSF reauthorization

Section 1(c) authorizes funding for earthquake activities at NSF of $28,700,000 for fiscal year 1988 and $32,100,000 for fiscal year 1989. These are the levels requested by the President.

The Committee continues to support NSF's research in earth sciences and the role that research plays in improving the Nation's understanding of seismic risks. In particular, the Committee expresses its support for NSF's Continental Scientific Drilling Program. This program provides needed information for earthquake research that cannot be obtained at the surface or through seismic scanning equipment. Samples from the earth's interior provide scientists with useful stress, pressure, and temperature measurements that could enable scientists to predict potential earthquakes with great accuracy. These samples can be obtained only by drilling holes. Surface studies provide useful but limited information that can be affected by surface conditions or background noise. The Committee, therefore, encourages NSF and the other NEHRP agencies to continue their strong support for this program, and if appropriate, to increase efforts in this area.

In the earthquake engineering area, the Committee has heard from many persons regarding NSF's decisions to create a National Center for Earthquake Engineering Research and to award that center to the State University of New York at Buffalo. The Committee supports the center concept; centers encourage cross-disciplinary research, draw support from the private sector, and serve as a good mechanism for transferring research results to industry. The technology transfer aspect may be particularly valuable. In the past, technology transfer from NSF-supported researchers to the engineering user community has been criticized. The Committee also supports NSF's general policy of devoting greater attention and resources to earthquake hazards in the eastern United States. These hazards are serious but as yet poorly understood.

The Committee urges NSF, however, not to neglect or unduly reduce individual research grants in earthquake engineering. Indi-

vidual researchers and teams continue to be a major source of new fundamental science.

The Committee also notes that a great deal of concern has been expressed about the procedures NSF followed in deciding to make the earthquake center award to SUNY-Buffalo. Senators Wilson and Cranston asked the General Accounting Office (GAO) to review that process. The resulting report, "National Science Foundation: Problems Found in Decision Process for Awarding Earthquake Center," reached this conclusion: "While GAO did not find evidence of preselection for a particular proposal, it did find serious problems with NSF's management of the award process." GAO specifically cites the lack of adequate documentation, particularly how the evaluation panel ranked applicants according to stated selection criteria; a matching funds requirement that was not clear; and NSF's use of a "conditional" recommendation which recommended SUNY-Buffalo but on the condition that a subsequent site visit to California could change this preliminary recommendation.

GAO made three recommendations to the Director of NSF to improve the Foundation's management of its process for selecting centers. The recommendations are: (1) to require documentation in NSF's large award packages that clearly links reviewer comments to the stated criteria in the program announcement; (2) to require that the program announcement specify the requirements for matching funds commitments, expecially concerning due dates; and (3) not to consider conditional recommendations in situations where the evaluation of the substantive merits of all proposals has not been completed. The Committee strongly endorses these recommendations and directs NSF to adopt them. The Committee also directs NSF to be explicit about exactly what criteria will be used in selecting the most qualified applicant.

NBS reauthorization

Section 1(d) authorizes funding for earthquake-related activities at NBS in the amounts of $525,000 for fiscal year 1988 and $525,000 for fiscal year 1989.

The Committee recognizes the importance of earthquake engineering research at NBS's Center for Building Technology and believes it to be an integral part of the earthquake program. NBS's research focuses on serious gaps in our understanding of how buildings and other structures behave during earthquakes. This information helps eliminate gaps in building codes and standards and suggests ways to repair or retrofit existing structures. NBS also provides important technical advice to FEMA's earthquake program.

The Committee realizes that inflation and funding cuts have severely eroded the Center for Building Technology's budget in recent years, and commends the Center for its dedication and contributions under exceptionally difficult circumstances.

SECTION 2

Section 2 amends the Act by adding a new section 5(j) that specifies the percentage of the total cost of a State's FEMA-assisted

NEHRP program activities that the State must provide in order to remain eligible for FEMA earthquake planning grants.

As mentioned in the earlier discussion of FEMA, the Committee rejects FEMA's proposal to require the States to provide 50 percent of these funds in fiscal year 1988. Instead, the new section 5(j) provides for an orderly phase-in of matching requirements.

The new section 5(j) has three parts. First, in the case of any State which has voluntarily engaged in cost sharing by matching Federal grants from FEMA for activities under the Act over the 3-fiscal-year period ending September 30, 1987, and such cost-sharing that may be required for fiscal year 1988 or fiscal year 1989 shall be at a level no higher than the State's average level of such cost-sharing over such 3-year period.

Second, in the case of any State which has not engaged in cost-sharing by matching FEMA funds for activities under the Act over the 3-fiscal-year period ending September 30, 1987, no such cost-sharing may be required for fiscal year 1988 and any cost-sharing that may be required for fiscal year 1989 shall be no higher than 25 percent of the total cost. That is, in the case of a State that has never voluntarily shared in the costs of its NEHRP FEMA grants program, FEMA would be allowed to require the State to pay for a specific portion of the costs, up to 25 percent of the total. FEMA would have to pay the remaining 75 percent or more of the costs. For example, if a State's fiscal year 1989 level of earthquake planning activities under FEMA's part of the NEHRP is $100,000, FEMA may require that State to pay up to $25,000 of those costs. The remainder shall be provided by FEMA. The Committee has written this provision in a way that differs slightly from the House-passed bill, but the intent is identical.

Third, nothing in this subsection shall be construed to prevent a State, voluntarily and at its option, from engaging in cost-sharing at a level higher than the maximum that might be required of it under the first two provisions of this subsection. The Committee expects that the three States that already share costs with FEMA will continue to do so.

Changes in Existing Law

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new material is printed in italic, existing law in which no change is proposed is shown in roman):

Earthquake Hazards Reduction Act of 1977

Section 5 of that Act

SEC. 5. NATIONAL EARTHQUAKE HAZARDS REDUCTION PROGRAM.

(a) through (i) * * *

(j) Cost Sharing.—(1) In the case of any State which has voluntarily engaged in cost sharing by matching Federal grants from the Federal Emergency Management Agency for activities under this Act over the three-fiscal-year period ending September 30, 1987, any such cost sharing that may be required for the fiscal year ending

September 30, 1988, or the fiscal year ending September 30, 1989, shall be at a level no higher than the State's average level of such cost sharing over such three-year period.

(2) In the case of any State which has not engaged in cost sharing by matching Federal grants from the Federal Emergency Management Agency for activities under this Act over such three-fiscal-year period—

(A) no such cost sharing may be required for the fiscal year ending September 30, 1988; and

(B) any such cost sharing that may be required for the fiscal year ending September 30, 1989, shall be at a level no higher than 25 percent of the cost of the activities involved.

(3) Nothing in this subsection shall be construed to prevent a State, voluntarily and at its option, from engaging in cost sharing at a level higher than the maximum level which may be required of it under paragraph (1) or (2).

Section 7 of that Act

SEC. 7. AUTHORIZATION OF APPROPRIATIONS.

(a) GENERAL.—(1) * * *

(2) through (6) * * *

(7) There are authorized to be appropriated to the Director, to carry out the provisions of sections 5 and 6 of this Act, $5,778,000 for the fiscal year ending September 30, 1988, and $5,788,000 for the fiscal year ending September 30, 1989.

(b) GEOLOGICAL SURVEY.—There are authorized to be appropriated to the Secretary of the Interior for purposes of carrying out, through the Director of the United States Geological Survey, the responsibilities that may be assigned to the Director under this Act not to exceed $27,500,000 for the fiscal year ending September 30, 1978; not to exceed $35,000,000 for the fiscal year ending September 30, 1979; not to exceed $40,000,000 for the fiscal year ending September 1980; $32,484,000 for the fiscal year ending September 30, 1981; $34,425,000 for the fiscal year ending September 30, 1982; $31,843,000 for the fiscal year ending September 30, 1983; $35,524,000 for the fiscal year ending September 30, 1984; $37,300,200 for the fiscal year ending September 30, 1985; $35,578,000 for the fiscal year ending September 30, 1986; and [and] $37,179,000 for the fiscal year ending September 30, 1987; *$40,540,000 for the fiscal year ending September 30, 1988; and $41,819,000 for the fiscal year ending September 30, 1989.*

(c) NATIONAL SCIENCE FOUNDATION.—To enable the Foundation to carry out responsibilities that may be assigned to it under this Act, there are authorized to be appropriated to the Foundation not to exceed $27,500,000 for the fiscal year ending September 30, 1978; not to exceed $35,000,000 for the fiscal year ending September 30, 1979; not to exceed $40,000,000 for the fiscal year ending September 30, 1980; $26,600,000 for the fiscal year ending September 30, 1981; $27,150,000 for the fiscal year ending September 30, 1982; $25,000,000 for the fiscal year ending September 30, 1983; $25,800,000 for the fiscal year ending September 30, 1984; $28,665,000 for the fiscal year ending September 30, 1985; $27,760,000 for the fiscal year ending September 30, 1986; [and]

$29,009,000 for the fiscal year ending September 30, 1987; *$28,700,000 for the fiscal year ending September 30, 1988; and $32,100,000 for the fiscal year ending September 30, 1989.*

(d) NATIONAL BUREAU OF STANDARDS.—To enable the Bureau to carry out responsibilities that may be assigned to it under this Act, there are authorized to be appropriated $425,000 for the fiscal year ending September 30, 1981; $425,000 for the fiscal year ending September 30, 1982; $475,000 for the fiscal year ending September 30, 1983; $475,000 for the fiscal year ending September 30, 1984; $498,750 for the fiscal year ending September 30, 1985; $499,000 for the fiscal year ending September 30, 1986; [and] $521,000 for the fiscal year ending September 30, 1987; *$525,000 for the fiscal year ending September 30, 1988; and $525,000 for the fiscal year ending September 30, 1989.*

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Calendar No. 498

100TH CONGRESS *1st Session*	SENATE	REPORT 100-261

DRIFTNET IMPACT MONITORING, ASSESSMENT, AND CONTROL ACT OF 1987

Mr. HOLLINGS, from the Committee on Commerce, Science, and Transportation, submitted the following

REPORT

OF THE

SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ON

S. 62

DECEMBER 16 (legislative day, DECEMBER 15), 1987.—Ordered to be printed

U.S. GOVERNMENT PRINTING OFFICE
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S263-29

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

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Calendar No. 498

100TH CONGRESS *1st Session* | SENATE | REPORT 100-261

THE DRIFTNET IMPACT MONITORING, ASSESSMENT, AND CONTROL ACT OF 1987

DECEMBER 16 (legislative day, DECEMBER 15), 1987.—Ordered to be printed

Mr. HOLLINGS, from the Committee on Commerce, Science, and Transportation, submitted the following

REPORT

[To accompany S. 62]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 62) to improve efforts to monitor, assess, and reduce the adverse impacts of driftnets, having considered the same, reports favorably thereon with an amendment in the nature of a substitute and recommends that the bill as amended do pass.

PURPOSE OF THE BILL

S. 62, as reported, would improve efforts to monitor, assess, and mitigate the environmental problems attributable to driftnets used by commercial fishing vessels off the coasts of the United States.

BACKGROUND AND NEEDS

Pelagic driftnets are a large-scale modification of traditional coastal gillnets. They consist of a panel of monofilament plastic webbing suspended vertically in the water by floats at the top of the panel and weights at the bottom. The nets are permitted to drift with the wind and currents, and create a webbing curtain through which nothing larger than the opening in the mesh can pass. Although driftnet fisheries target on a specific harvest such as squid, the gear is not selective and seabirds, marine mammals, and other fish also become entangled in the nets and die. Another problem associated with driftnets is the entanglement of marine animals in lost and abandoned net fragments. Finally, about 30–50 percent of the catch is estimated to be lost when fish ensnared in

the driftnets die and drop out of the nets before they are retrieved by the fishermen.

DRIFTNET FISHERIES OF THE NORTH PACIFIC

The driftnet fisheries of the North Pacific Ocean have been a matter of concern to the United States since Japan initiated a salmon drift gillnet fishery more than 30 years ago. In 1953, the International North Pacific Fisheries Commission was established under international treaty to attempt to regulate this fishery and to ensure the protection of North American salmon stocks. In recent years, Japan, Korea, and Taiwan have initiated or expanded driftnet fisheries for squid, tuna, marlin, and other species on the high seas. Responding to U.S. concerns, some nations have agreed to restrict their driftnet fisheries to areas in which salmon are less likely to be harvested incidentally. There is, however, little or no enforcement of those boundaries by the flag-state, and Coast Guard surveillance flights have documented an increasing number of violations. In July and August of this year alone, the Coast Guard observed nearly 100 squid fishing vessels outside the accepted areas, many of them with their numbers covered to avoid identification.

In the North Pacific, Japan has a fleet of approximately 1,500 vessels which use driftnets to catch salmon, squid, billfish, pomfret, and albacore. In addition, Taiwan conducts a squid driftnet fishery involving approximately 130 vessels, and the Republic of Korea operates about 100 vessels. The length of nets generally ranges from 7 to 30 miles and the total amount of netting which is set is enormous. Estimates indicate that over 20,000 miles of nets may be deployed each night during the fishing season for a total of more than 1,000,000 miles each year. In addition, over 600 miles of nets are thought to be lost or discarded from these fisheries annually. The net fragments may continue to "ghost fish" in the ocean for years due to the durability of the plastic netting.

DRIFTNET IMPACTS ON MARINE RESOURCES

Little reliable information is currently being collected on the magnitude of the impact of driftnets on marine life. One Alaskan fisheries expert has estimated that the Japanese salmon driftnet fleet annually catches about 2,000,000 king, coho, and red salmon of western Alaskan origin. The potential value of the catch which is lost to U.S. fishermen could range from $4-$8 million each year. In addition, evidence exists that some vessels which are purported to be harvesting squid on the high seas may actually be targeting salmon in violation of international regulations. Last year, in Tacoma, WA, enforcement agents of the National Marine Fisheries Service (NMFS) seized almost 600,000 pounds of salmon allegedly caught by Taiwanese squid vessels and illegally exported from Taiwan. Similarly this year, agents have seized 208,000 pounds of salmon in Bellingham, WA; 179,633 pounds in Oakland, CA; and 159,633 pounds in Riverside, CA. The Committee is concerned that these incidents may represent only a small percentage of the illegally caught salmon that is redirected for export to other nations.

Tens of thousands of marine mammals are taken incidentally by actively fished driftnets each year. The incidental catch, along with

the associated entanglement of animals in lost fishing gear and marine debris, is believed the largest non-natural cause of marine mammal mortality in the North Pacific today. Pursuant to agreements within the International North Pacific Fisheries Commission, the Japanese mothership salmon fleet has been allowed to fish for salmon within the U.S. exclusive economic zone (EEZ), provided that it complies with the provisions of the Marine Mammal Protection Act governing the incidental taking of marine mammals, which become entangled and die in the driftnets during the course of that fishing. Although permits have been issued for the incidental taking of Dall's porpoise, fur seals, and sea lions in previous years, NMFS has been enjoined by order of the U.S. District Court for the District of Columbia from issuing a permit for the season which would begin in June 1988. The District Court ruled that northern fur seals that are incidentally taken by the fleet are depleted below optimum levels and that the Act prohibits the issuance of a permit to take any such depleted marine mammals.

Prior to the District Court decision, the Committee was concerned about the impacts of the mothership fishery within the U.S. EEZ and the adequacy of measures to monitor and regulate the activities within the zone. Although the injunction obviates the need to address those issues at this time, the Committee intends to monitor developments in the litigation and take such action as may be necessary to deal with any resumption of fishing within the U.S. EEZ.

In addition to salmon and marine mammals, some 800,000 seabirds are thought to drown each year when they swim into driftnets and become entangled while feeding on fish below the surface of the water. Many of the species taken are covered under the Convention for the Protection of Migratory Birds and Birds in Danger of Extinction and Their Environment between the United States and Japan. Thirteen of the 18 species covered by the Convention are included in the Annex to the Convention listing species which may not be taken under the Convention because of the agreed biological need to protect them. Mortality rates of breeding birds within 60 nautical miles of land are thought to be five times higher than rates in the remainder of the U.S. EEZ and account for almost half of all breeding bird mortality. To address this issue, S. 62, as introduced, contained provisions to establish a seabird protection zone extending 60 miles around Aleutian Island nesting areas. At the present time, however, there will be no fishing by foreign driftnet vessels in our EEZ as a result of the recent U.S. District Court decision to grant a preliminary injunction against issuance of a marine mammal incidental-take permit to the Japanese mothership salmon driftnet fleet. Consequently, provisions of S. 62 relating to the activities of Japanese salmon vessels in the U.S. EEZ are unnecessary at this time and have been deleted. The Committee intends to consider this and other aspects of the terms and conditions for foreign driftnet operations in the U.S. EEZ when and if such operations are permitted to resume.

USE OF DRIFTNETS BY U.S. FISHERMEN

Although driftnets are also employed in some U.S. commercial fisheries, the nets which are used by domestic fishermen generally are much shorter than those of the foreign fleets. S. 62 does not apply to gillnets less than 1.5 miles in length which are used extensively by coastal fishermen within state waters where they can be and are effectively monitored and regulated by State authorities. A survey by NMFS identified only one fishery in which U.S. harvesters use driftnets a mile and a half in length or longer. That fishery is for Atlantic mackerel and is comprised of 13 vessels which operate out of Fort Pierce, FL, and use driftnets ranging from 0.7 to 2.8 miles in length.

MONITORING AND ENFORCEMENT ARRANGEMENTS

The administration has consulted repeatedly with representatives of the foreign governments whose vessels conduct pelagic driftnet fisheries, in an effort to reach agreement on cooperative arrangements for research, monitoring, and enforcement of flag-state restrictions on driftnet fishing vessels. These efforts have been unsuccessful. The Committee considers it essential that such arrangements be negotiated and implemented jointly in the near future and believes that legislation is needed to encourage such efforts.

LEGISLATIVE HISTORY

Senator Stevens introduced S. 62 on January 6, 1987. The bill is cosponsored by Senators Murkowski, Danforth, Packwood, Dodd, Cranston, Bradley, and Evans. S. 62, as introduced, is very similar to S. 2611, legislation reported favorably by the Committee during the 99th Congress. That legislation resulted from a 1985 oversight hearing by the Committee and the National Ocean Policy Study which examined the environmental impacts of driftnets used by the fleets of Japan, the Republic of Korea, and Taiwan in the North Pacific Ocean.

A hearing on S. 62 was held by the Committee and the National Ocean Policy Study on April 30, 1987. At that hearing, concerns were expressed by the administration and by New England fishermen concerning some of the bill's provisions. The text of S. 62 subsequently was revised to accommodate those concerns. On November 19, 1987, the Committee, in open executive session and without objection, ordered S. 62 reported with an amendment in the nature of a substitute.

SUMMARY OF MAJOR PROVISIONS

As reported S. 62 would:

1. Improve our assessment of the impacts of driftnet fisheries on marine mammals, seabirds, North American-origin salmon, and other marine life. The U.S. would be required to negotiate with the flag-states of the driftnet fleets to arrange for cooperative research agreements. In addition, the Secretary of Commerce (Secretary) would prepare an impact report which summarizes the information

available on the driftnet fisheries which operate in the North Pacific Ocean.

2. Take initial steps toward the control and mitigation of the adverse effects of driftnet fisheries including:

a. Negotiation of agreements with the flag-states of the driftnet fleets for joint enforcement of laws, regulations, and agreements relating to their driftnet fisheries;

b. Development of a net bounty system to encourage retrieval of lost and abandoned netting; and

c. Requirements for a net marking, registry, and identification system to make enforcement easier.

3. Provide sanctions for a nation's refusal to cooperate in assessing and mitigating the impacts of driftnet fishing activities. Failure to negotiate enforcement or monitoring agreement within a year would trigger a discretionary authority on the part of the President to embargo products from that nation. Foreign governments would be expected to pay at least an equal share of the costs of the monitoring and enforcement programs.

ESTIMATED COSTS

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget Act of 1974, the Committee provides the following cost estimate, prepared by the Congressional Budget Office:

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington, DC, December 9, 1987.

Hon. ERNEST F. HOLLINGS,
Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate, Washington, DC.

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the attached cost estimate for S. 62, the Driftnet Impact Monitoring, Assessment, and Control Act of 1987.

If you wish further details on this estimate, we will be pleased to provide them.

With best wishes,

Sincerely,

EDWARD M. GRAMLICH,
Acting Director.

CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

1. Bill number: S. 62.

2. Bill title: Driftnet Impact Monitoring, Assessment, and Control Act of 1987.

3. Bill status: As ordered reported by the Senate Committee on Commerce, Science, and Transportation, November 19, 1987.

4. Bill purpose: S. 62 would require the Secretary of Commerce to assess the impact of driftnets on fish and other marine life and to negotiate, through the State Department, monitoring and enforcement arrangements with foreign governments whose nationals fish with driftnets. The bill would require the foreign governments to

pay 50 percent of the costs of the monitoring and enforcement programs.

S. 62 would also require the Secretary to establish a bounty system on retrieved driftnets, paid out of sums appropriated from the Fishery Vessel and Gear Damage Compensation Fund, and to develop a net marking, registry, and identification system.

In addition, the bill would require the Department of Commerce to provide the Congress with several reports on the implementation of these provisions.

5. Estimated Cost to the Federal Government:

[By fiscal year, in millions of dollars]

	1988	1989	1990	1991	1992
Estimated authorization level	1.6	2.0	2.1	2.2	2.2
Estimated outlays	1.2	2.0	2.0	2.1	2.2

The costs of this bill fall within budget functions 300 and 370. The table does not include any estimate of potential additional costs that the Coast Guard or NOAA might incur for enforcement because the enforcement program implemented would depend on the outcome of the negotiations. The Coast Guard spend about $54 million and NOAA spent around $1 million in fiscal year 1987 on foreign fishing enforcement. Based on information provided by the Coast Guard, CBO expects that additional enforcement efforts, such as an increase in aerial surveillance outside the United States exclusive economic zone, could cost up to $3 million annually.

Basis of estimate: This estimate assumes that S. 62 would be enacted in January 1988. The estimated authorization levels are based on information provided by the National Oceanic and Atmospheric Administration (NOAA) and the Department of State. The estimated outlays are based on historical spending patterns for these types of activities.

The table includes $750,000 annually for the monitoring program required by section 4 of the bill and the impact report required by section 5. The cost of any monitoring would depend on the outcome of the negotiations with the foreign governments, and could be substantially less if the negotiations are unsuccessful. This estimate assumes that agreements with foreign governments will be negotiated, that the National Marine Fisheries Service would station 26 observers on foreign vessels, and that the foreign government contribution to the monitoring program would be some type of payment-in-kind. The costs of the monitoring program could increase substantially in later years if better data are needed and if sufficient funds are appropriated. For example, CBO estimates that a program providing roughly 20 percent coverage of driftnet fisheries would cost approximately $7 million annually.

The table includes $100,000 in 1988 for developing the net bounty system and marking, registry, and identification system, and $1 million annually for bounty payments.

This estimate also includes additional amounts for negotiation costs incurred by the State Department. While the State Department is currently conducting negotiations on these issues with the

appropriate foreign governments, CBO expects that these activities would increase if S. 62 were enacted. The estimate includes $70,000 in 1988 and roughly $30,000 annually in following years for this activity.

6. Estimated cost to State and local governments: None.

7. Estimate comparison: None.

8. Previous CBO estimate: None.

9. Estimate prepared by: Michael Sieverts.

10. Estimate approved by: C.G. Nuckols (for James L. Blum, Assistant Director, for Budget Analysis).

REGULATORY IMPACT STATEMENT

In accordance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following evaluation of the regulatory impact of the legislation, as reported.

Additional reporting requirements may be imposed on foreign driftnet vessels fishing beyond the U.S. EEZ as a result of any agreements negotiated by the Secretary under sections 4 and 6 with the flag-state governments of such vessels. The nature and extent of such additional requirements would depend upon the agreement reached with the Secretary and would be imposed by the foreign flag-state. The regulations applicable to the net bounty system to be established under section 7 of the bill are also likely to require submission of information by applicants for bounty payments, but participation in the system is voluntary and imposes no reporting requirements; any person who does not wish to collect a bounty need not submit any information.

The legislation will have no other significant effect on the number or types of individuals and businesses regulated, the economic impact of such regulation, the personal privacy of affected individuals, or the paperwork required from such individuals and businesses.

SECTION-BY-SECTION ANALYSIS

SECTION 1.—SHORT TITLE

This section provides the short title, the "Driftnet Impact Monitoring, Assessment, and Control Act of 1987".

SECTION 2.—FINDINGS

This section expresses the findings of Congress concerning the problems associated with driftnet use, the need for reliable information regarding their impacts, and the need for increased efforts to monitor, assess, and reduce their adverse impacts.

SECTION 3.—DEFINITIONS

The term "driftnet" refers to plastic gillnets one and one-half miles or more in length, that are allowed to drift with the currents for the purpose of entangling fish. The term "exclusive economic zone of the United States" means the zone as defined in Section 3(6) of the Magnuson Fishery Conservation and Management Act (Magnuson Act). The term "living marine resources of the United States" includes both fish as defined in Section 3(6) of the Magnu-

son Act, and marine mammals, marine turtles, and seabirds. The term "Secretary" means the Secretary of Commerce.

SECTION 4.—MONITORING

This section calls for the Secretary through the Secretary of State to negotiate with foreign governments whose nationals conduct driftnet fisheries in the waters of the North Pacific Ocean off the coasts of the United States. The goal of the negotiations is to develop a statistically reliable cooperative monitoring and assessment program to determine the number of living marine resources killed and retrieved, discarded, or lost by the foreign government's driftnet fishing vessels. The foreign government must pay at least 50 percent of the cost of the program.

In addition, the Secretary is required to report to Congress, not less that 1 year after enactment of this legislation, on the results of his efforts under this section.

SECTION 5.—IMPACT REPORT

The Secretary is required under this section to submit to Congress a report on driftnet fisheries off our coasts and on the number of living marine creatures they kill. The report is to include the best available information on driftnet fisheries, as defined in section 3, both within and beyond the U.S. EEZ. With respect to those fisheries beyond the U.S. EEZ, the Committee intends that the Secretary request information from the flag-state of the vessels involved and evaluate the adequacy and reliability of that information. An extensive independent Federal research program is neither required by this section, nor should it be necessary once the monitoring arrangements to be negotiated under section 4 are implemented.

SECTION 6.—ENFORCEMENT AGREEMENTS

This section calls for the Secretary, through the Secretary of State, to negotiate with foreign governments whose nationals conduct driftnet fisheries in the waters of the North Pacific Ocean off the coasts of the United States. Through the negotiations, arrangements for joint enforcement of laws, regulations, and agreements relating to driftnet fleets should be developed. The foreign government involved must pay for at least 50 percent of the cost of the joint enforcement program.

If a foreign government fails to reach agreement within 1 year, the Secretary would be required to provide a certification to that effect. Such a certification would be treated as a "certification" under the Pelly Amendment (section 8(a) of the Fishermen's Protective Act of 1967) and trigger the President's discretionary authority to embargo fish products from that nation. The same certification process is also mandated for failure to enter into an adequate monitoring arrangement within one year under section 4(a) of the bill.

The bill does not assert any extension of jurisdiction by the United States beyond that which exists under current law, nor does it provide authority for any direct, unilateral enforcement measures beyond those authorized by current law. The Committee is

hopeful that the required negotiations of monitoring and enforcement arrangements will be successful and views section 6(b) as a spur to conclude agreements in a timely manner.

Although the mandatory certification required by section 6(b) represents new law, it is not a new enforcement mechanism or practice. The Committee views it as being consistent with the purposes of the Pelly Amendment and reflecting the fact that a nation that refuses to cooperate with monitoring and enforcement efforts is diminishing the effectiveness of international conservation programs relating to salmon, seabirds, and other marine life. In addition to this new provision, the Committee notes that the Secretary already has discretionary authority under the Magnuson Act to deny permits to vessels of a foreign nation that fails to agree to acceptable monitoring and enforcement arrangements. The Committee intends that, before exercising that authority, the Secretary consult with the relevant Regional Fishery Management Councils and consider the potential impact of proposed actions on the United States fishing industry in various regions. No action should be taken if it might serve or be construed as an extension of United States fisheries jurisdiction.

SECTION 7.—NET BOUNTY SYSTEM

The Secretary is directed under this section to establish a net bounty system for retrieval of "ghost" nets and other plastic fishing net material. Bounty payments are to be set by regulation and made, subject to Appropriations Acts, from the Fishing Vessel and Gear Damage Compensation Fund established by section 10 of the Fishermen's Protective Act of 1967.

SECTION 8.—NET MARKING, REGISTRY, AND IDENTIFICATION SYSTEM

The Secretary is required under this section to submit to Congress, within 6 months after the date of enactment of the legislation, a report setting forth evaluations and recommendations for establishment of a system to mark, register, and identify nets to allow for determination of the origin of abandoned and discarded nets and net fragments. Also, the Secretary is directed to evaluate the development of a cooperative driftnet fishing vessel tracking system making use of satellite and other techniques to monitor the location of driftnet fishing vessels. The report is to include recommendations on this vessel tracking system and on the use of biodegradable or other materials in driftnets to accelerate decomposition of "ghost" nets.

SECTION 9.—CONSTRUCTION WITH OTHER LAWS

This section states that nothing in this legislation will serve to expand or diminish the sovereign rights of the U.S. as set forth in the Presidential Proclamation relating to the U.S. EEZ or in existing law.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the Committee states that the bill as reported would make no change to existing law.

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